

(19)



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(11)

EP 0 945 788 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
26.06.2002 Bulletin 2002/26

(51) Int Cl.7: **G06F 9/38**

(43) Date of publication A2:
29.09.1999 Bulletin 1999/39

(21) Application number: **99200311.1**

(22) Date of filing: **03.02.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **04.02.1998 US 73668 P**

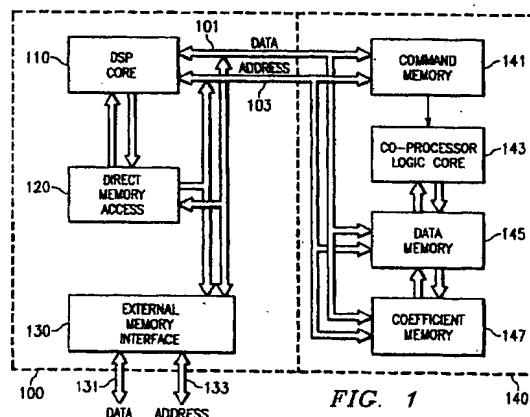
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(54) Data processing system with digital signal processor core and co-processor

(57) A data processing system includes a digital signal processor core (110) and a co-processor (140). The co-processor (140) has a local memory (141, 145, 147) within the address space of the said digital signal processor core (110). The co-processor (140) responds commands from the digital signal processor core (110). A direct memory access circuit (120) autonomously transfers data to and from the local memory (141, 145, 147) of the co-processor (140). Co-processor commands are stored in a command FIFO memory (141) mapped to a predetermined memory address. Control commands includes a receive data synchronism command stalling the co-processor (140) until completion of a memory transfer into the local memory (141, 145, 147). A send data synchronism command causes the co-processor (140) to signal the direct memory access circuit (120) to trigger memory transfer out of the local memory (141, 145, 147). An interrupt command causes the co-processor (140) to interrupt the digital signal processor core (110).



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0311

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	EP 0 758 123 A (QUALCOMM INC) 12 February 1997 (1997-02-12) * page 3, line 56 - page 4, column 5; figures 1,6A *	1-13	G06F9/38
Y	HERRMANN D ET AL: "High speed video board as a case study for hardware-software co-design" PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON COMPUTER DESIGN. ICCD. VLSI IN COMPUTERS AND PROCESSORS. AUSTIN, OCT. 7 - 9, 1996, LOS ALAMITOS, IEEE COMP. SOC. PRESS, US, 7 October 1996 (1996-10-07), pages 185-190, XP010201800 ISBN: 0-8186-7554-3 * the whole document *	1,10	
Y	US 5 420 989 A (DUNLAP FRED ET AL) 30 May 1995 (1995-05-30) * column 2, line 1 - line 18; figures 1,2 * column 2, line 42 - column 4, line 57 *	1-13	
A	EP 0 653 848 A (AT & T CORP) 17 May 1995 (1995-05-17) * column 2, line 18 - line 25; figure 1 *	1,10	
A	KIM W-H ET AL: "DESIGN AND IMPLEMENTATION OF MPEG-2/DVB SCRAMBLER UNIT AND VLSI CHIP" IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, IEEE INC. NEW YORK, US, vol. 43, no. 3, 1 August 1997 (1997-08-01), pages 980-984, XP000742588 ISSN: 0098-3063 * the whole document *	1,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6) G06F
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 6 May 2002	Examiner Thibaudeau, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0311

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 5 418 976 A (IIDA KOUICHI) 23 May 1995 (1995-05-23) * column 1, line 60 - column 2, line 8 * -----	1,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.8)
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 6 May 2002	Examiner Thibaudeau, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EP 99 20 0311

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The members are as contained in the European Patent Office EDP file on
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06-05-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0758123	A	12-02-1997	US 5784532 A	21-07-1998
			EP 0758123 A2	12-02-1997
			GR 3030467 T3	29-10-1999
			SI 695454 T1	31-12-1998
			AT 172570 T	15-11-1998
			AT 179532 T	15-05-1999
			AU 697822 B2	15-10-1998
			AU 1846595 A	04-09-1995
			AU 8190998 A	22-10-1998
			BR 9505650 A	05-03-1996
			CN 1123061 A	22-05-1996
			DE 69505469 D1	26-11-1998
			DE 69505469 T2	10-06-1999
			DE 69509381 D1	02-06-1999
			DE 69509381 T2	25-11-1999
			DK 695454 T3	05-07-1999
			DK 758123 T3	08-11-1999
			EP 0695454 A1	07-02-1996
			ES 2125602 T3	01-03-1999
			ES 2130733 T3	01-07-1999
			FI 954920 A	15-12-1995
			HK 1009303 A1	28-04-2000
			HK 1020382 A1	29-12-2000
			IL 112650 A	06-12-1998
			JP 8509306 T	01-10-1996
			SG 52441 A1	28-09-1998
			SI 758123 T1	31-10-1999
			WO 9522819 A1	24-08-1995
			US 5727123 A	10-03-1998
			US 5926786 A	20-07-1999
			ZA 9500798 A	22-01-1996
US 5420989	A	30-05-1995	NONE	
EP 0653848	A	17-05-1995	EP 1111798 A1	27-06-2001
			EP 0653848 A2	17-05-1995
			JP 7202726 A	04-08-1995
			US 5748650 A	05-05-1998
US 5418976	A	23-05-1995	JP 1226066 A	08-09-1989

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82